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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/891,569	06/25/2001	Lothar Wenzel	5150-55600	1977

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EXAMINER

KIBLER, VIRGINIA M

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 09/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/891,569

Applicant(s)

WENZEL ET AL.

Examiner

Virginia M Kibler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-3, 5-12, 14, 15, and 18-36 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 5-8, 10, 12, 13, 16, 19, 22-28, and 30-37 of U.S. Patent No. 6,615,158. Although the conflicting claims are not identical, they are not patentably distinct from each other.

Claim 1 of the instant invention analyzes an image defined in a bounded n-dimensional space whereas claim 1 of Wenzel et al. (U.S. Pat. No. 6,615,158) analyzes a bounded n-dimensional surface. Claim 12 of Wenzel discloses the surface comprising an image. Therefore, it would have been obvious to have modified the surface disclosed by Wenzel to include an image. The instant invention determines a diffeomorphism (f,g) whereas Wenzel determines a diffeomorphism f. However, it is noted in the specification of the instant invention that the diffeomorphism (f,g) is for illustrative purposes only, and that other representations, e.g., f, may be appropriate (Page 40, lines 10-11). The instant invention analyzes the mapped plurality of points whereas Wenzel discloses analyzing the samples of the surface. However, the samples of

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the surface are a subset of the mapped plurality of points. Therefore, it would have been obvious to modify Wenzel's claim 1 to obtain the invention as specified in claim 1 of the instant invention.

Claims 2 and 3 of the instant invention are not patentably distinct from claims 2 and 3 of Wenzel, respectively.

Claims 5-9 of the instant invention are not patentably distinct from claims 5-8 and 13 of Wenzel, respectively.

Claim 14 of the instant invention includes an image defined in a unit n -cube whereas claim 19 of Wenzel discloses an abstract surface defined in a unit cube. An image defined in a unit n -cube may be considered an abstract surface. Therefore, it would have been obvious to modify the abstract surface disclosed by Wenzel to include an image defined in a unit n -cube. While claim 19 of Wenzel does not disclose analyzing the mapped Low Discrepancy Sequence to determine one or more of the characteristics of the image as recited in claim 15 of the instant invention, claim 12 of Wenzel teaches that it is well known. Therefore, it would have been obvious to one of ordinary skill in the art to modify claims 19 and 12 of Wenzel to obtain the invention as specified in claims 14 and 15 of the instant invention.

Claims 11, 12, 18, and 19 of the instant invention include a 3D image and an n -dimensional image wherein n is greater than 3. Claim 10 of Wenzel discloses an n -dimensional volume. While Wenzel does not expressly claim a 3D image or n -dimensional image where n is greater than 3, it would have been obvious to one of ordinary skill in the art.

Claims 20-22 and 24 of the instant invention are not patentably distinct from claims 22-24 and 13 of Wenzel, respectively.

Claims 25, 29, 32, and 34 of the instant invention analyze an image defined in a bounded n-dimensional space whereas claims 25, 30, 33, and 35 of Wenzel analyze a bounded n-dimensional surface. Claim 12 of Wenzel discloses the surface comprising an image. Therefore, it would have been obvious to have modified the surface disclosed by Wenzel to include an image.

Claims 26-28, 30, 33, and 35 are not patentably distinct from claims 26-28, 31, 34, and 36 of Wenzel, respectively.

Claims 31 and 36 of the instant invention analyze an image defined in a unit n-cube whereas claims 32 and 37 of Wenzel analyze an abstract surface defined in a unit n-cube. An image defined in a unit n-cube may be considered an abstract surface. Therefore, it would have been obvious to modify the abstract surface disclosed by Wenzel to include an image defined in a unit n-cube.

3. Claims 4, 10, 13, 16, and 17 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 12, and 19 of U.S. Patent No. 6,615,158 in view of Nair et al. ("Image Processing and Low Discrepancy Sequences").

Claims 4 and 13 of the instant invention include analyzing the mapped plurality of points to determine characteristics of the image comprising performing pattern recognition on the image and detecting an edge in the image. Claims 16 and 17 of the instant invention include analyzing the mapped Low Discrepancy Sequence to determine one or more characteristics of the image including detecting an edge and performing pattern recognition on the image. Claim 12 of Wenzel discloses analyzing the mapped plurality of points of the image to determine characteristics of the image. While Wenzel does not expressly disclose performing pattern

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recognition or detecting an edge, Nair et al. ("Nair") teaches that it is known to use the mapped plurality of points including a Low Discrepancy Sequence to perform pattern recognition on the image (Abstract; Sect. 3-5). Therefore, it would have been obvious to one of ordinary skill in the art to have modified Claims 1, 12, and 19 of Wenzel to include the limitations of the claims 4, 13, 16, and 17 of the instant invention because it is well known in the art and takes advantage of specific properties of low discrepancy sets.

Claims 10 and 23 of the instant invention include data comprising an intensity function of the image. Claim 12 of Wenzel discloses receiving data comprising an image and sampling the image to generate samples of the image, but does not expressly disclose an intensity function of the image. However, Nair teaches that it is known to receive data comprising an intensity function of the image (Sect. 4, page 107). Therefore, it would have been obvious to one of ordinary skill in the art to have modified claims 1, 12, and 19 of Wenzel to include the limitations of claims 10 and 23 of the instant invention because it is well known in the art of image processing.


Contact Information

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Virginia M Kibler whose telephone number is (703) 306-4072. The examiner can normally be reached on Mon-Thurs 8:00 - 5:30 and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Virginia Kibler can be reached on (703) 308-4072. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Virginia Kibler
09/27/04

MEHRDAD DASTOURI
PRIMARY EXAMINER

